Harris, of what is regarded by every Palæontologist who has seen the specimen as an unquestionable *organism*. It forms part of a limestone bed intercalated with dark grey shale, and occurs in the midst of highly metamorphic rocks (among them a graphite granite), which were regarded by Sir Roderick Murchison as of Laurentian age, and which have ever since passed as such—no doubt being entertained as to their antiquity by Dr. Heddle, of St. Andrew's, who has geologised over the whole of Harris.

Judging from the sections which Mr. Thomson has forwarded to me, the fabric seems to have consisted of superposed layers of calcareous shell-substance, whose continuity is frequently interrupted; the spaces between these layers, which are much thinner than the lamellæ themselves, being irregularly and imperfectly divided (very much as in Eozoon) into separate chambers, which are filled up with calcite. The state of preservation of the fossil thus corresponds exactly with that of the Silurian *Stromatopora*, to which, indeed, it bears a strong general resemblance, except in the larger proportion borne by the solid fabric to the chambers it encloses. The shelly layers are as distinct in character from the calcite contents of the chambers, as are those of the Nummulites of the pyramid-limestone, with which they agree in their remarkable hardness, corresponding with that of porcellanous shell. Altogether I have no hesitation in concurring with Prof. H. A. Nicholson, Prof. Geikie, and Mr. Etheridge in affirming it to be so unmistakeably organic, that, if it be claimed by mineralogists as a "rock-structure," a large number of universally-accepted fossils will have to go along with it. As it is *essentially calcareous* in its composition, there is no room for the hypothesis of its production by the process of "mineral segregation," which is maintained by certain Mineralogists (others of at least equal eminence, however, entirely dissenting from them) to have been adequate to the production of the alternating layers of serpentine and calcareous shell-substance in the Canadian *Eozoon*. And though mineralogical analysis might not improbably detect small particles of various minerals in its substance, their presence no more establishes its claim to be regarded as a mere rock-structure, than does the presence of siliceous films (probably replacing the soft parts of the animal) in a piece of coral-limestone.

Not having made any other than a general examination of the structure of the Harris specimen, I do not feel able to give a positive opinion upon its affinities; and it may be that these may long remain doubtful. But this doubt no more constitutes an adequate reason for refusing to accept its organic origin, than it does in the case of *Stromatopora;* which no Mineralogist that I ever heard of claims as a mineral, though the Zoologist cannot say with certainty whether it is a foraminifer, a sponge, a coral, or a polyzoary. It is to be borne in mind that in very few Palæozoic fossils is there a *precise* conformity to any existing type; and such conformity is, of course, still less to be expected in a Laurentian than in a Silurian fossil.

It is not a little singular that I should have received about the same time from Prof. Möbius of Kiel, specimens of a new Foraminiferal organism, discovered by him in 1874 on a coral reef off Mauritius; which presents more resemblance in its spreading and encrusting mode of growth to the indefinite expansions of *Eozoon* and *Stromatopora*, than does any Foraminiferal type previously known. Truly, as I have before had occasion to say, "there is no limit to the possibilities of Foraminifera."

I have only to add, in regard to the Harris fossil, that the further prosecution of the inquiry into its structure and relations has been placed by Mr. Thomson in the able hands of Prof. H. Alleyne Nicholson, and that it is at the joint request of these two gentlemen that I make the present communication.

WILLIAM B. CARPENTER

The Warm Rain Band in the Daylight Spectrum

ON taking my accustomed spectroscopic peep at the sky today, through a little garret window in the Royal Observatory here, I was instantly struck with the presence of the same dark band in the spectrum to which I called your attention last summer twice over (vol. xii. pp. 231, 251).

The band was very faint, but it was there, and this was its first appearance, to me at least, during the present year. I have not indeed been so persevering in that sort of observation as I perhaps should have been if furnished with better instruments, yet for weeks and weeks past I *have* scanned the sky, not only when it was heavily clouded, but also when rain was actually falling with west, south-west, and north-east winds, and sometimes during dense, wet fogs, when very little daylight at all was left, and under some preternaturally low barometric pressures. Yet, under all these circumstances, I put the spectroscope back into its box after each trial with the assurance that no rain-band had then been shown by it. This morning, however, and under a barometer not low, viz., 29·8 British inches, the band exhibited itself instantly; and on my going out to look at the direction of the wind, behold it was from the south-east. Wherefore I had no scruple in informing a professor whom I met in the afternoon at the College, and who, after his day's work there was going home to indulge in the amenities of horticulture, that his flowers were certain of presently having the luxury of *warm rain*.

Such rain, too, did begin, within an hour of that interview, with large heavy drops, and the evening has ended with almost a soaking rain.

It is rather too soon to attempt fully to describe the spectrum appearance, much less to explain it, before I have had the privilege of using anything in the way of a notable spectroscope upon it. But having been already written to for some practical information, even from St. Petersburg (where NATURE is evidently read with attention), I may remark that the nebulous band character of the phenomenon is simply a result of want of light; for when the quality to give the band was present in the air, and the sun has been prevailed on to shine for a moment through that air, and into the spectroscope, the band was instantly resolved into a group, or groups, of fine and sharp black lines, exquisitely visible.

But as the sun is seldom to be seen in any weather threatening rain, whether warm or cold, in fact, cannot be consulted precisely at those times when he is most wanted, it is better to restrict such pluvio-spectroscopy to ordinary sky, *i.e.*, clouds or air; and if possible in a polar direction, so as to be equally distant from the sun, whether visible or not, all the day through; and not too low, in altitude, lest smoke, local moisture, and other impurities have too great and variable an influence. The Observatory garret-window here, I regret to say, is not so unexceptionably situated in azimuth as it might be, for it looks out straight to the south, and the angle at which I usually look through it, on being measured to-day, turned out to be 23°.

Nevertheless, at that altitude, keeping to it steadily on all occasions, and in that direction, avoiding always the garish spectra of actual sunshine, and depending not on any particular and absolute spectrum representation in the published maps of other observers, but chiefly or entirely attending to the *differences* observed by myself from day to day in my own manner with my own little tube, there was no difficulty in instantly pronouncing this morning that there was something in the air through which daylight was then passing different from what it has been for several months past.

Whether that something is only watery vapour at a high temperature (seeing that watery vapour at a low temperature does not produce it), or whether the air is carrying something else with it, giving to the south-east winds here a slight approach to the quality of the siroccos of the Mediterranean, which are often transfused with fine dust along with their warm rain, and do produce some very noteworthy markings in the spectrum, is a matter for further and wider research by those who are instrumentally and financially better able to follow it up; and who should therefore be implored in the present state and needs of science to perform their part without further delay.

PIAZZI SMYTH,

Edinburgh, April 24 Astronomer-Royal for Scotland

Limestone Makers

MR. J. MUNRO'S interesting letter and sketch which appeared in NATURE, vol. xiii. p. 510, show how much may be done in the Tropics by ordinary observers towards elucidating many geological problems. His sketch is that of one of the genus Corallina, a member of the Florideæ, and it is a very common lime maker at the Bermudas. Although Mr. Munro will not find a list of the different limestone makers in books, still in the vast unwritten knowledge of geology it is well known that shells, foraminifera, serpulæ in numbers, and huge masses of Nullipores, besides the corallines, contribute to the coral stock.

The corallines present many and varied forms on our own coasts, but their beauty and construction are remarkable in the warm waters of the Gulf Stream and Caribbean Sea. Through the kindness of Mr. Henry Lee I have lately had the opportunity of examining the newly-started growth of the common *Corallines officinalis*, but curious as its cellular development is, it is

© 1876 Nature Publishing Group

a dwarf in comparison with those seen by Mr. Munro and Mr. Quin. Doubtless the broken-down and pulverised corallines fill up many a crack in the reef's limestone. Should Mr. Munro be desirous of seeing some of his old West Indian corallines, I shall be glad to show him some microscopical results of work upon them. P. MARTIN DUNCAN

Geological Society, May 1

History of Magnetism

A PARAGRAPH in the article on "The Early History of Magnetism," in your last number, contains a passage which requires, I think, a note of explanation. The writer says: "A Latin letter ascribed to Peter Adsiger, 1269, preserved among the manuscripts of the University of Leyden, contains the following remark on the declination of the needle . . ." Now Humboldt, on the authority of Libri, denies the existence of the passage in the Leyden MSS., affirming that it is only an interpolation in a Paris copy. But what is of more importance, he also states that the title of the letter is "Epistola Pêtri P. de Maricourt *ad Sigernum* de Foucoucourt." E. Walker, in his well-known essay on Magnetism, refers to Cavallo as quoting the supposed letter of Adsiger. S. J. PERRY

Meteorological Society

WHILE thanking you for your friendly notice of the Annual Report of this Society, I trust you will allow me to state that we have not made "the mistake in science regarding the height of the thermometers above the ground," as very naturally imagined by you from the matter not having been mentioned. The fact is, we have been unusually strict on that point; our thermometers are all 4 feet (within, perhaps, 2 in. + or −), and as the uniformity was so strict, it was considered useless to repeat the statement for each station, and so, finally, it escaped mention altogether in the printed abstract. Of course the question (Report, p. 52), "What is the height of the bulbs above grass?" is duly answered on the MS. inspection forms deposited in the library of the Society.

May I, in conclusion, express the hope that the example which we have set by publishing the lithograph ground-plans, and which you so highly approve, may be generally followed both in this country and abroad? G. J. SYMONS

Meteorological Society, 30, Great George Street, Westminster, S.W., April 28

Destruction of Flowers by Birds

THE enclosed blossoms of the common "wild" cherry (*Prunus avium*, L.) have been mutilated in a precisely similar manner with those of the blackthorn noticed about a year ago in NATURE (vol. xii. p. 26), the petals and stamens still adhering to the separated limb of the calyx, which has been cut through at the exact level of the ovary, which has perhaps been the object of attack. Orchard trees in the neighbourhood from the same stock have also suffered to a serious extent, but the wall-cherries (*P. cerasus*, L.), which are later in flowering, have hitherto been untouched. R. A. PRYOR

Hatfield, May 2

OUR ASTRONOMICAL COLUMN

THE NEBULA IN ORION.—M. Tisserand, Director of the Observatory at Toulouse, commenced on Feb. 17 of the present year, a close examination of the small stars in the vicinity of the trapezium in the great nebula of Orion, with the Foucault telescope of $0^{m}\cdot80$ aperture, which had been completely mounted at the beginning of the same month. To facilitate the study of this region, which it is intended shall form part of the work with this fine instrument, a chart was prepared on a large scale containing the 155 stars, the positions of which relatively to θ^{1} Orionis, were determined by M. O. Struve (*Observations de la Grande Nebuleuse d'Orion* in the St. Petersburg Memoirs, vol. v.); of these 155 stars it may be mentioned that 150 occur in Sir John Herschel's list in the volume of observations made at the Cape of Good Hope. Especial attention was directed at Toulouse during the few weeks that the nebula could be observed in the last season, to the stars which M. O. Struve had indicated as variable. The star Π ($\Delta\alpha\ldots -7''\cdot3$, $\Delta\delta\ldots -27''\cdot6$) which is not in Herschel's catalogue, was noted on Feb. 17 and 21 at the extreme limit of visibility: on following days, when the sky was more transparent, it could not be discerned; at maximum according to Struve this star is of the twelfth magnitude, the smallest star which can be distinctly seen in the Pulkowa refractor being considered 13·5—a very different scale of magnitude, it will be remarked, from that of Bessel; No. 78 ($\Delta\alpha\ldots +34''\cdot5$, $\Delta\delta\ldots +9''\cdot7$), varying, according to Struve, from 12·5 to invisibility, was not discerned; No. 75 ($\Delta\alpha\ldots +21''\cdot3$, $\Delta\delta\ldots +39''\cdot2$) was 14-15 on March 14; Tisserand found No. V. of the Pulkowa list ($\Delta\alpha\ldots +378''\cdot3$, $\Delta\delta\ldots +66''\cdot3$) extremely faint on Feb. 24, and quite invisible subsequently, whence he concludes this star to be also variable, and that its non-insertion by Herschel may have arisen from its being at a minimum at the epoch of his observations.

Thirty-two stars have been remarked at Toulouse, which are not in the Pulkowa catalogue; of these fifteen occur in Bond's catalogue, in vol. v. of "Annals of the Harvard Observatory"; the remaining seventeen which have not, as it appears, been previously observed, are generally very faint, the only notable exceptions being in the cases of two stars, which have the following estimated co-ordinates relative to θ^{1}.

$\Delta\alpha$	... ... $+180''$	$\Delta\delta$	... ... $-180''$
,,	... ... $-110''$	,,	... ... $-480''$

The first star was 13 (an object termed *très belle* with the Toulouse instrument) on February 17, but had become extremely faint on March 14 and 26. The second star is estimated 13, almost as bright as its neighbour, No. 55 of Struve's catalogue. M. Tisserand states that he has not been able to recognise all the stars in Bond's catalogue, more particularly in the neighbourhood of the trapezium.

The numerous variable stars, which we have now reason to suppose exist in the nebula of Orion, certainly form one of the most significant and interesting features in the history of that grand object.

It may be added here that M. Tisserand has also employed the powerful optical means now at his command, upon observations of the satellites of Uranus.

NEW MINOR PLANETS.—Still another small planet is announced during the last week. It was found by M. Perrotin at Toulouse on April 26, in R.A. 14h. 11m. 48s, N.P.D. 96° 24′; twelfth magnitude.

The planet detected by Prof. Watson at Ann Arbor on April 19 is called No. 161 in the *Astronomische Nachrichten*. These numbers, however, are now in much confusion, and names for those which are observed a sufficient length of time to allow of the determination of elements have an obvious advantage over the system of leaving these planets to be distinguished by a number only. As regards numbers there is even doubt as far back as No. 149, which has not yet been shown to be distinct from Frigga (No. 77).

BIELA'S COMET AND THE NOVEMBER METEOR-STREAM.—If we take for the orbit of the November meteor-stream the elements calculated by Prof. J. C. Adams, and communicated to the Royal Astronomical Society in April, 1867, and for Biela's comet a mean of the sets of elements for the two nuclei in 1866, given by Clausen in "Melanges Mathématiques et Astronomiques," &c., t. iii., of the Imperial Academy of St. Petersburg, we find for the least distance between the tracks of the comet and the meteors, 0·054, the mean distance of the earth from the sun being taken as unity. This nearest point of approach is in heliocentric longitude 61° 30′ (equinox of 1866), where we have—

	Comet.	Meteors.
Heliocentric latitude ...	0° 58′ N.	2° 57′ N.
True anomaly...	311° 44′	356° 24′
Radius-vector...	1·0266	0·9865

© 1876 Nature Publishing Group